

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Ni, Jian
Yu, Guo-Liang
Gentz, Reiner
Rosen, Craig A.

(ii) TITLE OF INVENTION: NATURAL KILLER CELL ENHANCED FACTOR-C

(iii) NUMBER OF SEQUENCES: 17

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
STUART & OLSTEIN
(B) STREET: 6 Becker Farm Road
(C) CITY: Roseland
(D) STATE: New Jersey
(E) COUNTRY: USA
(F) ZIP: 07068

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US 08/467,265
(B) FILING DATE: 06-JUN-1995
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Ferraro, Gregory D.
(B) REGISTRATION NUMBER: 36,134
(C) REFERENCE/DOCKET NUMBER: 325800-456

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 201-994-1700
(B) TELEFAX: 201-994-1744

(2) INFORMATION FOR SEQ ID NO 1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 918 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

(A) NAME/KEY: CDS
(B) LOCATION: 31..843

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

AAGGGAACGT GTTCTCCCC TCGTTTGGTC ATG GAG GCG CTG CCC CTG CTA GCC 54
Met Glu Ala Leu Pro Leu Leu Ala
1 5

GCG ACA ACT CCG GAC CAC GGC CGC CAC CGA AGG CTG CTT CTG CTG CCG 102
Ala Thr Thr Pro Asp His Gly Arg His Arg Arg Leu Leu Leu Leu Pro
10 15 20

CTA CTG CTG TTC CTG CTG CCG GCT GGA GCT GTG CAG GGC TGG GAG ACA 150
Leu Leu Leu Phe Leu Leu Pro Ala Gly Ala Val Gln Gly Trp Glu Thr
25 30 35 40

GAG GAG AGG CCC CGG ACT CGC GAA GAG GAG TGC CAC TTC TAC GCG GGT 198
Glu Glu Arg Pro Arg Thr Arg Glu Glu Glu Cys His Phe Tyr Ala Gly
45 50 55

GGA CAA GTG TAC CCG GGA GAG GCA TCC CGG GTA TCG GTC GCC GAC CAC 246
Gly Gln Val Tyr Pro Gly Glu Ala Ser Arg Val Ser Val Ala Asp His
60 65 70

TCC CTG CAC CTA ACC AAA GCG AAG ATT TCC AAG CCA GCG CCC TAC TGG 294
Ser Leu His Leu Ser Lys Ala Lys Ile Ser Lys Pro Ala Pro Tyr Trp
75 80 85

GAA GGA ACA GCT GTG ATC GAT GGA GAA TTT AAG GAG CTG AAG TTA ACT 342
Glu Gly Thr Ala Val Ile Asp Gly Glu Phe Lys Glu Leu Lys Leu Thr
90 95 100

GAT TAT CGT GGG AAA TAC TTG GTT TTC TTC TTC TAC CCA CTT GAT TTC 390
Asp Tyr Arg Gly Lys Tyr Leu Val Phe Phe Phe Tyr Pro Leu Asp Phe
105 110 115 120

ACA TTT GTG TGT CCA ACT GAA ATT ATC GCT TTT GGC GAC AGA CTT GAA 438
Thr Phe Val Cys Pro Thr Glu Ile Ile Ala Phe Gly Asp Arg Leu Glu
125 130 135

GAA TTC AGA TCT ATA AAT ACT GAA GTG GTA GCA TGC TCT GTT GAT TCA 486
Glu Phe Arg Ser Ile Asn Thr Glu Val Val Ala Cys Ser Val Asp Ser
140 145 150

CAG TTT ACC CAT TTG GCC TGG ATT AAT ACC CCT CGA AGA CAA GGA GGA 534
Gln Phe Thr His Leu Ala Trp Ile Asn Thr Pro Arg Arg Gln Gly Gly
155 160 165

CTT GGG CCA ATA AGG ATT CCA CTT CTT TCA GAT TTG ACC CAT CAG ATC 582
Leu Gly Pro Ile Arg Ile Pro Leu Leu Ser Asp Leu Thr His Gln Ile
170 175 180

TCA AAG GAC TAT GGT GTA TAC CTA GAG GAC TCA GGC CAC ACT CTT AGA 630
Ser Lys Asp Tyr Gly Val Tyr Leu Glu Asp Ser Gly His Thr Leu Arg
185 190 195 200

GGT CTC TTC ATT ATT GAT GAC AAA GGA ATC CTA AGA CAA ATT ACT CTG 678
Gly Leu Phe Ile Ile Asp Asp Lys Gly Ile Leu Arg Gln Ile Thr Leu
205 210 215

AAT GAT CTT CCT GTG GGT AGA TCA GTG GAT GAG ACA CTA CGT TTG GTT 726
 Asn Asp Leu Pro Val Gly Arg Ser Val Asp Glu Thr Leu Arg Leu Val
 220 225 230
 CAA GCA TTC CAG TAC ACT GAC AAA CAC GGA GAA GTC TGC CCT GCT GGC 774
 Gln Ala Phe Gln Tyr Thr Asp Lys His Gly Glu Val Cys Pro Ala Gly
 235 240 245
 TGG AAA CCT GGT AGT GAA ACA ATA ATC CCA GAT CCA GCT GGA AAG CTG 822
 Trp Lys Pro Gly Ser Glu Thr Ile Ile Pro Asp Pro Ala Gly Lys Leu
 250 255 260
 AAG TAT TTC GAT AAA CTG AAT TGAGAAATAC TTCTTCAAGT TATGATGCTT 873
 Lys Tyr Phe Asp Lys Leu Asn
 265 270
 GAAAGTTCTC AATAAAGTTC ACGGTTTCAT TACCACAAAA AAAAA 918

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 271 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Glu Ala Leu Pro Leu Leu Ala Ala Thr Thr Pro Asp His Gly Arg
 1 5 10 15
 His Arg Arg Leu Leu Leu Leu Pro Leu Leu Leu Phe Leu Leu Pro Ala
 20 25 30
 Gly Ala Val Gln Gly Trp Glu Thr Glu Glu Arg Pro Arg Thr Arg Glu
 35 40 45
 Glu Glu Cys His Phe Tyr Ala Gly Gly Gln Val Tyr Pro Gly Glu Ala
 50 55 60
 Ser Arg Val Ser Val Ala Asp His Ser Leu His Leu Ser Lys Ala Lys
 65 70 75 80
 Ile Ser Lys Pro Ala Pro Tyr Trp Glu Gly Thr Ala Val Ile Asp Gly
 85 90 95
 Glu Phe Lys Glu Leu Lys Leu Thr Asp Tyr Arg Gly Lys Tyr Leu Val
 100 105 110
 Phe Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
 115 120 125
 Ile Ala Phe Gly Asp Arg Leu Glu Glu Phe Arg Ser Ile Asn Thr Glu
 130 135 140
 Val Val Ala Cys Ser Val Asp Ser Gln Phe Thr His Leu Ala Trp Ile
 145 150 155 160

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Asn Thr Pro Arg Arg Gln Gly Gly Leu Gly Pro Ile Arg Ile Pro Leu
165 170 175
Leu Ser Asp Leu Thr His Gln Ile Ser Lys Asp Tyr Gly Val Tyr Leu
180 185 190
Glu Asp Ser Gly His Thr Leu Arg Gly Leu Phe Ile Ile Asp Asp Lys
195 200 205
Gly Ile Leu Arg Gln Ile Thr Leu Asn Asp Leu Pro Val Gly Arg Ser
210 215 220
Val Asp Glu Thr Leu Arg Leu Val Gln Ala Phe Gln Tyr Thr Asp Lys
225 230 235 240
His Gly Glu Val Cys Pro Ala Gly Trp Lys Pro Gly Ser Glu Thr Ile
245 250 255
Ile Pro Asp Pro Ala Gly Lys Leu Lys Tyr Phe Asp Lys Leu Asn
260 265 270

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GCGCGGATCC ATGGAGGCGC TGCCCTGCT

29

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

CGCCCATGGA GGCGCTGCCC CTG

23

(2) INFORMATION FOR SEQ ID NO:5:

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- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "PRIMER"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CGCCCATGGC TGGAGCTGTG CAGGG

25

- (2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "PRIMER"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CGCGTCTAGA TCAATTCAGT TTATCGAAAT ACTTCAGC

38

- (2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "PRIMER"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GCGCGGATCC GCTGGAGCTG TGCAGG

26

- (2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

CGCGGATCCC GAGGCGCTGC CCCTGC

26

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

CGCGGATCCT CAATTCAGTT TATCGAAATA C

31

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

CGCGGATCCG CCATCATGGA GGCGCTGCCC CTG

33

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
(A) DESCRIPTION: /desc = "PRIMER"

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CGCGGATCCT CAATTCAGTT TATCGAAATC A

31

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

GCGCGGATCC ACCATGGAGG CGCTG

25

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 52 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "PRIMER"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

GCGCTCTAGA TCAAGCGTAG TCTGGGAGGT CGTATGGGTA ATTCAGTTTA TC

52

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 199 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Met Ser Ser Gly Asn Ala Lys Ile Gly His Pro Ala Pro Asn Phe Lys

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1		5		10		15									
Ala	Thr	Ala	Val	Met	Pro	Asp	Gly	Gln	Phe	Lys	Asp	Ile	Ser	Leu	Ser
		20					25						30		
Asp	Tyr	Lys	Gly	Lys	Tyr	Val	Val	Phe	Phe	Phe	Tyr	Pro	Leu	Asp	Phe
		35					40					45			
Thr	Phe	Val	Cys	Pro	Thr	Glu	Ile	Ile	Ala	Phe	Ser	Asp	Arg	Ala	Glu
	50					55					60				
Glu	Phe	Lys	Lys	Leu	Asn	Cys	Gln	Val	Ile	Gly	Ala	Ser	Val	Asp	Ser
65					70					75				80	
His	Phe	Cys	His	Leu	Ala	Trp	Val	Asn	Thr	Pro	Lys	Lys	Gln	Gly	Gly
			85					90					95		
Leu	Gly	Pro	Met	Asn	Ile	Pro	Leu	Val	Ser	Asp	Pro	Lys	Arg	Thr	Ile
			100					105					110		
Ala	Gln	Asp	Tyr	Gly	Val	Leu	Lys	Ala	Asp	Glu	Gly	Ile	Ser	Phe	Arg
		115					120					125			
Gly	Leu	Phe	Ile	Ile	Asp	Asp	Lys	Gly	Ile	Leu	Arg	Gln	Ile	Thr	Val
	130					135					140				
Asn	Asp	Pro	Pro	Cys	Cys	Arg	Ser	Val	Asp	Glu	Thr	Leu	Arg	Leu	Val
145					150				155					160	
Gln	Ala	Phe	Gln	Phe	Thr	Asp	Lys	His	Gly	Glu	Val	Cys	Pro	Ala	Gly
			165						170					175	
Trp	Lys	Pro	Gly	Ser	Asp	Thr	Ile	Lys	Pro	Asp	Val	Pro	Lys	Thr	Lys
			180					185					190		
Glu	Tyr	Phe	Ser	Lys	Gln	Lys									
			195												

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 198 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Met	Ala	Ser	Gly	Asn	Ala	Arg	Ile	Gly	Lys	Pro	Ala	Pro	Asp	Phe	Lys
1				5					10					15	
Ala	Thr	Ala	Val	Val	Asp	Gly	Ala	Phe	Lys	Glu	Val	Lys	Leu	Ser	Asp
			20					25					30		

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Tyr Lys Gly Lys Tyr Val Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr
35 40 45
Phe Val Cys Pro Thr Glu Ile Ile Ala Phe Ser Asn Arg Ala Glu Asp
50 55 60
Phe Arg Lys Leu Gly Cys Glu Val Leu Gly Val Ser Val Asp Ser Gln
65 70 75 80
Phe Asn His Leu Ala Trp Ile Asn Thr Pro Arg Lys Glu Gly Gly Leu
85 90 95
Gly Pro Leu Asn Ile Pro Leu Leu Gly Asp Val Thr Arg Arg Leu Ser
100 105 110
Glu Asp Tyr Gly Val Leu Lys Thr Asp Glu Gly Ile Ala Tyr Arg Gly
115 120 125
Leu Phe Ile Ile Asp Gly Lys Gly Val Leu Arg Gln Ile Thr Val Asn
130 135 140
Asp Leu Pro Val Gly Arg Ser Val Asp Glu Ala Leu Arg Leu Val Gln
145 150 155 160
Ala Phe Gln Tyr Thr Asp Glu His Gly Glu Val Cys Pro Ala Gly Trp
165 170 175
Lys Pro Gly Ser Asp Thr Ile Lys Pro Asn Val Asp Asp Ser Lys Glu
180 185 190
Tyr Phe Ser Lys His Asn
195

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 257 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Met Ala Ala Ala Ala Gly Arg Leu Leu Trp Ser Ser Val Ala Arg Gly
1 5 10 15
Ala Ser Ala Ile Ser Arg Ser Ile Ser Ala Ser Thr Val Leu Arg Pro
20 25 30
Val Ala Ser Arg Arg Thr Cys Leu Thr Asp Ile Leu Trp Ser Ala Ser
35 40 45
Ala Gln Gly Lys Ser Ala Phe Ser Thr Ser Ser Ser Phe His Thr Pro
50 55 60

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Ala Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn
65 70 75 80

Gly Glu Phe Lys Glu Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu
85 90 95

Val Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu
100 105 110

Ile Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys
115 120 125

Glu Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp
130 135 140

Ile Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Thr
145 150 155 160

Leu Leu Ser Asp Ile Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu
165 170 175

Leu Glu Ser Ala Gly Ile Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro
180 185 190

Asn Gly Val Val Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg
195 200 205

Ser Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Phe Val Glu
210 215 220

Thr His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Glu Ser Pro Thr
225 230 235 240

Ile Lys Pro Ser Pro Thr Ala Ser Lys Glu Tyr Phe Glu Lys Val His
245 250 255

Gln

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 199 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Met Ser Ser Gly Asn Ala Lys Ile Gly Tyr Pro Ala Pro Asn Phe Lys
1 5 10 15

Ala Thr Ala Val Met Pro Asp Gly Gln Phe Lys Asp Ile Ser Leu Ser

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